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THE ADEQUACY OF NURSE STAFFING IN THE EMERGENCY DEPARTMENT WHEN PATIENT ACUITY IS A CONSIDERATION

By

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A Thesis Proposal

submitted in partial fulfillment

of the requirements for the degree of

Master of Science in Nursing

The University of Texas Health Science Center at Houston

School of Nursing

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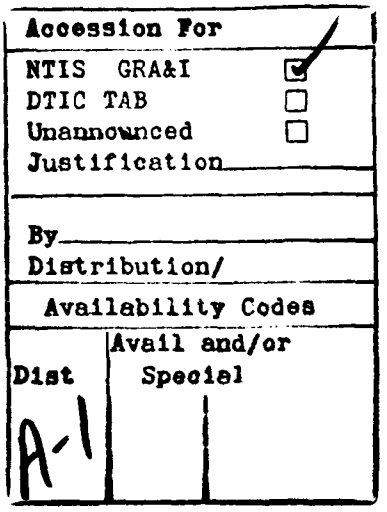

Chapter 1

INTRODUCTION

According to American Hospital Association statistics between 1983 and 1987 outpatient visits increased 16.9 percent, a trend that is not predicted to change. Emergency departments are being flooded by patients who use the ED as their primary source of health care. In addition to this increase in the number of patients seen in the ED there is evidence that patients using the ED are sicker then ever before (Fedale 1990). No one could have predicted the emergency department overcrowding problems, the epidemic of AIDS, the staggering growth of the drug problem, or the number of homeless persons seen today. It is not at all unusual for ED staff members to leave their daily shifts to return the next day to the same patients (Fedale 1990).

Nurse staffing in emergency departments (EDs) is most often determined on the basis of the previous years data concerning patient volume, without regard to the intensity of care the patient needed. However, necessary nursing time is influenced by patient acuity as well as patient volume i.e. higher levels of patient acuity require more nursing time. To capture this element of acuity, which is essential for adequate

scheduling of nurses, a patient classification system (PCS) is necessary. Due to the great diversity in daily patient volume, intensity of care needed, type of illness or injury, and length of stay, a PCS specifically related to emergency nursing activities must be used, as opposed to one that may have been developed for other nursing care units (Buschiazzo, 1987).

A PCS allows patient needs, or acuity, to be identified and thus assists in the delineation of staffing requirements. Nursing workload has changed drastically over the last fifteen years. With the advent of increasingly complex technology, growth in specialization, provision of more time-consuming tasks, increased emphasis on health teaching, personalization of services to patients, and ongoing evaluation of performance, nurses are finding it increasingly difficult to provide their patients with quality care (Sherrod, 1984).

Statement of the Problem

The number of patients seen in the ED is not an adequate indicator of the demand for care. Grouping patients into categories that reflect the acuity of their illness and thus magnitude of nursing care time provides a more rational and sensitive approach to

determining the need for paid nursing care resources (Giovannetti, 1983). At the present time there is little objective data available to substantiate staffing requirements in the ED (Schulmerich, 1989). Although patient classification systems for inpatients have been available for years, outpatient systems, especially in the ED setting, have been slow to develop (Kirsch & Talbott, 1990). Frankly, there are no nationally recognized Emergency Department PCSs at present.

Conceptual Framework

The system of nursing and its goal of staffing to meet patient needs does not operate in a vacuum, on the contrary, the impinging forces are multitudinous and trenchant and can be seen most clearly within the framework of the systems approach (Hanson, 1983). Over the past twenty years varying definitions of systems have been developed. Classic among them is Ludwig von Bertalanffy's definition of systems as "complexes of elements standing in interaction" (Lancaster, 1982). Societies, automobiles, human bodies, and hospitals are systems (Sullivan & Decker, 1988). Each of these open systems is composed of four components: inputs, throughputs, outputs, and feedback. The system takes information from the

environment, processes it, returns a product to the environment, and then adjusts further input accordingly. Figure 1 is the basic systems model.

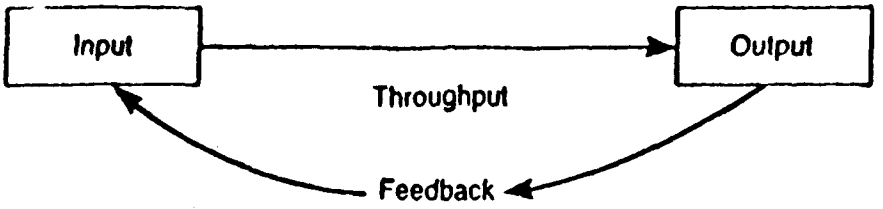

Figure 1

Basic Systems Model (Rowland & Rowland, 1985)

Application of Systems Theory can be applied to staffing in the following manner. In a system for perscribing optimal staffing, inputs would include information about daily average census, patient care needs, and staff capabilities. Each of these inputs is then further amplified or refined. For example input concerning patient care needs might consist of the type and frequency of nursing measures required by patients in each category. Throughput, or processing, in a staffing system would consist of those calculations undertaken to determine the correct numbers and categories of personnel needed for the unit; and,

output would be the specific work schedule with each nurse represented appropriately. Finally, feedback would include the factors limiting further scheduling of specific personnel such as the last shift worked, the need for time off or training, and the success and/or appropriateness of the scheduling decisions made. Figure 2 is the staffing system model (Gillies, 1989).

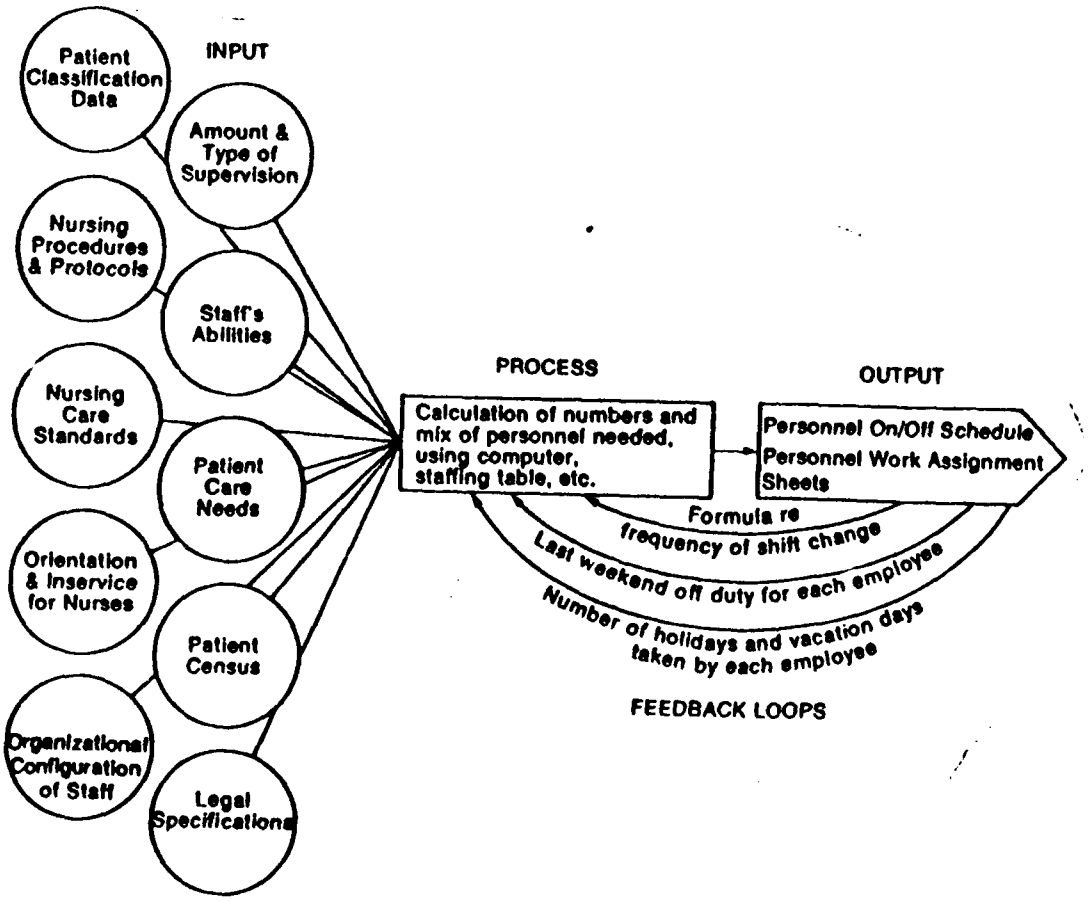

Figure 2

Staffing System (Gillies, 1989)

The number of inputs to be considered in a staffing system is large. Application of the systems theory to this study will be to look at one component of the staffing systems input, patient classification data. A concept basic to the systems theory is that each part of the system makes an important contribution to the whole and for staffing that means consideration must be given to all inputs in order to produce adequate output. Classification of patients according to acuity has long been neglected as an input to ED nurse scheduling and yet its contribution is essential. Use of the systems theory allows this point to be made.

Research Question

The following research question will be used to fulfill the purpose of this study: How congruent are current staffing patterns in the ED with predicted staffing level needs as determined by the use of a patient classification system?

Significance of the Problem

The change in ED patient census and acuity demand similar changes in the health care delivery system of the ED. Schulmerich (1989), a pioneer in ED patient classification, states that although the Joint Commission on Accreditation of Healthcare Organizations, JCAHO, has not yet required any kind of

a patient classification system in the outpatient hospital setting this will inevitably change in the future. With the increasing complexity of ambulatory healthcare delivery JCAHO necessitates that objective staffing methodologies be developed. These should encompass patient acuity, continuity of care and volume (Miller & Folse, 1989). State laws require hospitals with emergency departments to treat emergencies with staff who are competent to do so or they suffer imposed sanctions. In 1990 the Emergency Nurses Association (ENA) published a manual to provide guidance in the development of ED patient classification systems. They did this when they saw that the need for a system to quantify nursing care time by particular groups of patients in the ED had become a significant management issue (ENA, 1990). Then in 1991 ENA published their revised standards of emergency nursing practice which includes comprehensive standards that ED nurses are held accountable for.

With cost containment becoming more of a problem hospital administration is demanding concrete data from nursing service that supports staffing allocations. Emergency departments usually fall short in this task. There is also the threat of malpractice suits that are filed when standards of care are not met, often as the

result of insufficient staffing in the ED where nurse staffing levels are still determined by the census the previous year not patient acuity. The impetus is there for all EDs to develop PCSs and the time has arrived when they must do it.

Objective data to substantiate staffing needs based upon patient acuity is a new concept for the ED, but one that has been used for years in the inpatient setting. Patient classification systems justify staffing needs based not only on patient numbers but also on patient acuity. A PCS can also justify the skill mix needed to care for the patient population according to acuity. If the patient population demonstrates high acuity or admission rate, the size of the professional nursing staff must be sufficient to manage both the direct and indirect nursing care needs of the patients and the routine unit maintenance tasks.

Most EDs today base their staffing strictly on the number of patient visits with little or no regard to patient acuity. Patient census is only one of many components needed to calculate the number of nurses needed in the ED. The objective data gained from a PCS in the ED may not increase the number of nurses needed to care for these patients due to budgetary constraints, but it is a way to document any

disparities between actual hours provided and predicted hours needed. The feeling of many of todays ED nurses is that the standards of care set forth by accrediting agencies such as JCAHO and the expectations of care developed within their own facilities are impossible to meet with current staffing levels. Hopefully, this investigation will provide an objective evaluation of the adequacy of nursing care time available to validate or invalidate the nurses feelings. When patient care in the ED can take acuity into account for scheduling nurses then the hospital goal of total quality care for the ED patient can be met.

Definition of Terms

The following terms were defined for the purpose of this study:

Acuity- Severity of illness.

Patient classification system, (PCS)- an instrument for the grouping of patients into categories dependent upon the acuity of their illness and the treatment they receive.

Critical indicators- those patient care activities that have the greatest impact on nursing time. This includes the 40-50 nursing interventions that account for close to 85% of the physical care received by patients, as well as teaching, emotional support and nursing process elements.

Staffing- the number of nursing service personnel who deliver patient care to a group of patients, and maintain functioning of the emergency department in accordance with the Joint Commission on Accreditation of Healthcare Organizations standards for operation of a level I trauma center.

Direct nursing care activities,- this is "hands-on" and observable patient care. It is any care done in direct support of one specific and identifiable patient i.e. assessment, treatment, charting, coordination of care, etc.

Indirect nursing care activities- these are functions and responsibilities associated with all patient care in general but not identifiable to one specific patient i.e. checking the crash cart, ordering medication, counting narcotics, etc.

Non-nursing activiies- activities that are performed by a nurse but could be performed by someone else i.e. stocking supplies, cleaning instruments, answering the phone, emptying trash, etc.

Patient care hours- the total number of staff hours available for patient care.

Assumptions

Acuity is an important and vital component in the calculation of nursing care hours needed to provide care to patients in the emergency department on a daily basis.

Limitations

The limitation of this study is: The patient classification system used to measure the number of nursing care hours needed was developed by the investigator in this study in conjunction with the study; therefore, the reliabiltiy and validity of the instrument used are still being determined.

Chapter 2

REVIEW OF LITERATURE

This chapter presents a review of the literature concerning the use of patient classification systems for the prediction of staffing in the emergency care setting. A general definition of classification systems, their historical background and components of classification instruments and productivity are addressed.

Definition

Patient classification may be defined as the grouping of patients according to some observable or inferred properties or characteristics. In nursing, the term *patient classification* means the categorization of patients according to some assessment of their nursing care requirements over a specified period of time (Giovannetti, 1979). More specifically a PCS can be defined as the methods and processes of determining, validating, and monitoring individual patient care requirements over time in order to assist in such determinations as: unit staffing, patient assignments, case mix analysis, budget planning and defense, per patient cost of nursing services, variable patient billing and the maintenance of quality assurance standards (De Groot,1989). It provides information by which the required hours of nursing care can be

compared with the available nursing hours (Rea, 1990).

Historical Development

Patient classification systems have been developed and refined since the 1940s to provide a measure of staffing needs in nursing. Patients have been classified according to medical diagnosis, level of care (light, intermediate, heavy), and frequency and type of tasks performed (Stolley, 1989). Nursing has employed patient classification systems to organize information about hospitalized patients' need for nursing care for the last 15 years (Parrinello & Witzel, 1990). The primary objective of the first generation of PCSs was to predict nurse staffing levels from shift to shift (Giovannetti & Johnson, 1990). The development of patient classification systems has been in response to the variable nature of nursing care demands. The exact number of patient classification systems presently in existence is not known. In 1973 it was reported that there were some 40 pieces of patient classification literature, and in 1976 it was likely that the number had tripled (Giovannetti, 1979). Today the literature is extensive. The majority of these systems are based on approaches such as those proposed by Conner, the Commission for Administrative Services

in Hospitals (CASH), Rush-Medicus, the University of Saskatchewan, GRASP (trademark title), and more recently the Allocation, Resource Identification and Costing (ARIC). Today most hospitals use some type of classification system for determining patient acuity levels and nursing care requirements for inpatients (Butler, 1986).

A profile of one of these inpatient systems, GRASP, follows to enhance the readers understanding of inpatient PCSs. The GRASP system has gained much notoriety as a method of measuring required care hours specific to each patient as opposed to using average times. Meyer, (1985) describes this system as one which uses an objectively determined list of 40-50 nursing interventions that are determined to account for 85% of the physical care required by any given patient. GRASP also includes what they call indirect care activities such as teaching, emotional support, and nursing process. With GRASP each potential nursing task has a pre-assigned time based on tenths of an hour. At the end of the shift the nurse circles the time next to the appropriate task and totals all times for their shift; each twenty-four hours the times from each shift are totaled to give the total patient care

hours. Note an example of this system in Figure 3.

grasp PATIENT CARE HOUR CHART

Name H. TANT # 37430 DRG 143

	Day Of Stay									
	1	2	3	4	5	6	7	8	9	10
	4/14	4/15	4/16	4/17	4/18					
ASSESSMENT (Select as applicable)										
Initial/Admission Assessment	(6)	6	6	6	6	6	6	6	6	6
Update Assessment	1	(1)	(1)	(1)	(1)	1	1	1	1	1
PLANNING (Select as applicable)										
Initial Care Plan Development	(2)	2	2	2	2	2	2	2	2	2
Update/Revise Care Plan	1	(1)	(1)	(1)	(1)	1	1	1	1	1
IMPLEMENTATION (Select as applicable for each element)										
LEARNING/COPING (Select as applicable)										
Planned teaching	3	3	(4)	(3)	(2)	2	2	2	2	2
Special/planned emotional reassurance	(6)	6	6	(6)	(6)	6	6	6	6	6
DIET (Select highest applicable)										
Self/Family feed or NPO (intake assess only)	(1)	(1)	(1)	(1)	(1)	1	1	1	1	1
Feeds w/assistance	8	8	8	8	8	8	8	8	8	8
Tube/gastros feeding w/intermittent ↙ q4h	12	12	12	12	12	12	12	12	12	12
Total feeding by Personnel	14	14	14	14	14	14	14	14	14	14
ELIMINATION (Select highest applicable)										
Toilets w/o supervision (output assess only)	(1)	1	(1)	(1)	(1)	1	1	1	1	1
Foley care (includes bedpan x 1)	4	4	4	4	4	4	4	4	4	4
Toilets w/supervision; commode chair, bedpan	8	(8)	8	8	8	8	8	8	8	8
Toilets w/constant supervision	10	10	10	10	10	10	10	10	10	10
Colostomy care & irrigation	16	16	16	16	16	16	16	16	16	16
Incontinent care	16	16	16	16	16	16	16	16	16	16
CLEANLINESS (Select as applicable)										
Bathes self (includes AM & PM Care)	(3)	3	3	3	(3)	3	3	3	3	3
Bathes w/help or superv. (incl. AM & PM Care)	4	(4)	(4)	(4)	4	4	4	4	4	4
Bathed by personnel (includes AM & PM Care)	7	7	7	7	7	7	7	7	7	7
VITAL SIGNS/MEASUREMENT (Select Highest applicable)										
Routine vital signs (TPR, BP) BID-TID	2	2	2	2	2	2	2	2	2	2
Vital signs OID or close observation q8h	3	3	3	3	3	3	3	3	3	3
Vital signs q4h	(5)	(5)	(5)	5	(5)	5	5	5	5	5
Post-op vital signs or vital signs q2h	9	9	9	(9)	9	9	9	9	9	9
TURNING/ASSISTED ACTIVITIES (Select highest applicable)										
Walk w/assistance or up in chair w/asst OD	2	2	2	2	2	2	2	2	2	2
Walk w/asst. or up in chair w/asst. BID or TID	4	4	4	4	4	4	4	4	4	4
Bedrest-turn q2h (including skin care)	16	16	16	16	16	16	16	16	16	16
MEDICATIONS/FLUIDS ADMIN (Select all applicable)										
Oral meds, drops, suppos or ointments	2	2	2	(2)	(2)	2	2	2	2	2
Injection (estimate prn's)	(3)	(3)	(3)	(3)	3	3	3	3	3	3
I.V. medications	4	4	4	4	4	4	4	4	4	4
Initiate/monitor blood transfusions	6	6	6	6	6	6	6	6	6	6
Hyperal. or secondary IV's or Chemotherapy	12	12	12	12	12	12	12	12	12	12
Continuous I.V. Care	14	(14)	(14)	14	14	14	14	14	14	14
SUCTIONING/RESPIRATORY AIDS (Select all applicable)										
Trach. suction OID; or gastric/oral suction	5	5	5	5	5	5	5	5	5	5
Trach. suction q-3-4h	8	8	8	8	8	8	8	8	8	8
Cough & deep breathe/ag exercises	9	9	9	9	9	9	9	9	9	9
OTHER DIRECT NURSING CARE (Select as applicable)										
Simple dressings or special skin/decub care	3	3	3	3	3	3	3	3	3	3
Specimen collection	3	3	3	(3)	3	3	3	3	3	3
Isolation Technique	5	5	5	5	5	5	5	5	5	5
Complex dressing change (q6-8h)	10	10	10	10	10	10	10	10	10	10
Restraint Care	12	12	12	12	12	12	12	12	12	12
INDIRECT CARE	(6)	(6)	(6)	(6)	(6)	6	6	6	6	6
EVALUATION (Select as applicable)										
REVIEW/EVALUATE/DOCUMENTED CARE GIVEN	1	(1)	(1)	(1)	(1)	1	1	1	1	1
TOTAL — TOTAL (Tenths Hrs.)	31	42	39	39	28		.			
17.9 — Patient Care Hours (PCH)	3.1	4.2	3.9	3.9	2.8		.			

LOS Form

Figure 3

GRASP System patient care hour chart from Meyer, 1985

The GRASP workload measurement tool may be used both prospectively - to paln care and allocate staff - and retrospectivley for flow charting, quality assurance, costing, and productivity management.

Patient classification systems in outpatient settings such as the emergency department are relatively new. This is due to the complexities involved in developing these systems in areas where there are changes in patient census and acuity on an hourly basis (Schulmerich, 1984). An important step was taken, however, toward defining ambulatory nursing practice when Verran proposed a taxonomy of ambulatory nursing in 1981 (Parrinello & Witzel, 1990).The literature regarding ED PCSs is scarce, however all current PCSs appear to result in categories related to diagnosis or acuity level and the time needed to care for patients in each category (Stolley, 1989). Until recently the majority of ED staffing has been based on the number of patients seen each year. The Emergency Nurses Association (ENA, 1990) states that historically, ED PCSs were designed to assist in the billing process and not in the identification of required nursing resources and projection of staffing. They mention that by the mid-1980s, the primary

objective of the ED PCS had shifted; patient classification systems were being developed for a variety of reasons: to determine quality of patient care, to justify staffing needs, to meet professional and regulatory standards and to determine patient acuity.

Butler (1986) describes the development of an emergency department PCS based on a matrix system of weighted scores which translate into time. The patients are given weighted scores in each of ten key areas of care. These ten indicators have four levels of acuity with category one patients receiving minimal care and category four patients receiving maximal care. During 7 days of implementation of this PCS a productivity index of 1.02 was calculated indicating a 2% shortage in hours. The author of this project realized some of its limitations and shared those. It was implemented for only one week, not all staff members participated, nonproductive time was not factored in and the PCS was based on nursing time estimates as opposed to actual time requirements. The last limitation being quite significant because time-and-motion studies specific to the ED may have revealed different time estimate values then those used.

Buschiazzo (1987) discusses the development of another ED patient classification system based on four categories. These categories were determined by timing nursing tasks and then grouping tasks requiring approximately the same amounts of time together. These similar nursing tasks were then tied to medical diagnoses. The category the patient is placed in therefore is dependent upon his discharge diagnosis. This PCS has been in use for approximatley two years and has been tested every 6 months for validity and reliability. The author discussed how the PCS is used to predict staffing levels needed however a productivity index was not calculated to confirm over or under staffing.

Components of Classification Instruments

The concept of patient classification encompasses the premise that different patients require different amounts of nursing care time. The consumption of nursing care time is measured by specified amounts of time assigned to interventions, indicators of care, or diagnoses. Nursing care times may then be totaled, based on the number of interventions or indicators to yield a nursing-minute per patient visit and nursing-hour per patient day value (ENA, 1990). The three

components of classification instruments are: (a) the indicators of care, (b) the instrument format, and (c) the quantification scheme used to classify patients (Verran, 1986).

Critical indicators of care are a listing of potential patient care requirements. They are designed to depict separate but related dimensions of patient care which, when considered together, predict the level of care that is likely to be required by the patient (De Groot, 1989). These indicators represent those nursing actions that have the greatest effects on nursing time or intensity (Verran, 1986). Typically the indicators include activities associated with feeding, bathing, and ambulation, observations, special treatments, etc. (Giovannetti, 1979). The validity of these indicators rests on their conceptual completeness, not their absolute number (De Groot, 1989). Critical indicators vary from setting to setting because of the variation in clients, agency philosophy, and specific nursing roles (Verran, 1986).

Instrument format can be accomplished in one of three ways. The three evaluation design instruments represent a progression in sophistication of measurement and data collection systems. They are as follows: (1) descriptive, (2) checklist, and (3) engineered unit standard (Rea, 1990).

Descriptive evaluation design instruments (prototype) are characterized by broad descriptions and characteristics of the typical patient in each category. Critical indicators of care are used for the prototype descriptions. In classifying patients, actual patient characteristics are compared with those in the prototype, and patients are then matched to the appropriate category description (Verran, 1986). Because this design requires subjective interpretation by the nursing staff in that the same patient might be categorized into different levels by different nurses it is limited (Rea, 1990).

A checklist evaluation design instrument (factor) is characterized by the delineation of specific elements of care which the patient is rated on independently. These elements are the critical indicators of care for the setting. Factors or elements are then combined to form a total score that may be

categorized (Verran, 1986). Again, a problem inherent in this design is that different nurses may categorize the same patient differently.

The engineered-unit standard is described by Rea (1990) as an evaluation design instrument that represents the most complex patient classification system and provides the most objective data. She relates that "a tasking document" must be developed that identifies both direct and indirect patient care activities; and, that each of the identified tasks needs to be defined to establish the specifications for measurement. Rea continues by saying the after determining and defining these activities, timed observations must be conducted and obtained across all shifts and all days of the week. From an analysis of these measurements, nursing activities can be grouped into various patient care indicators and ultimately collapsed into three to five larger patient categories. Each of these categories can be correlated with a specific amount of required nursing time. Unfortunately engineered standards measure nursing care as it is actually practiced not as it should be practiced (Rea, 1990). However, by identifying the standards of care for different patient groups in the task list prior to

data collection this instrument will allow for data collection that reflects nursing care time needed to provide quality care (Rea, 1990).

Quantification schemes are necessary as an estimation of the nursing care resources associated with each category of care (Giovannetti, 1979). Giovannetti explains that although many approaches are used, two methods for quantification are common; one based on average care times for each patient category, and the other based on standard care times for specific nursing procedures. Whether the system uses average care times, standard times for procedures, or a combination of both is of less importance than the data collection techniques used and the manner in which the observational studies are conducted (Giovannetti, 1979).

Productivity

Edwardson (1985) describes productivity as a measure of the efficiency with which labor, materials, and equipment are converted into goods and services. It is traditionally expressed as a ratio of output per input. She describes that in nursing a great deal of attention has been devoted to individual elements of a productivity model: the inputs and outputs of nursing

care, the processes used to convert inputs into outputs, and the environment in which this process occurs. The author states that the most commonly studied input measures have been number and qualifications of nursing personnel; and that output has most often been assessed in terms of the quantity of services provided, for example number of patient days, hours of care, procedures or outpatient visits (Edwardson, 1985).

Rea (1990) claims that in the ED setting it is impossible to determine the contribution of nursing to the emergency facility workload or the nursing staff's productivity by using emergency visit as the output unit of measurement. She continues to say that it is well known that not all clinic or ED visits require the same amount of nursing care time (e.g. a patient requiring major trauma resuscitation versus a patient with a cold). Rea contends that a much more sensitive measure of nursing productivity compares hours of required nursing care of patients seen in the ED with hours of available care. This productivity formula may be written as follows:

$$\text{Nursing Productivity} = \frac{\text{Hours of Available Nursing Time}}{\text{Hours of Required Nursing Time}}$$

Rea states that the resulting index provides a basis by which the productivity of nursing can be evaluated. If the index is less than 1.0, the actual hours provided were less than the hours required by types of patients seen. This may mean the staff was more productive, or it may mean that less than adequate nursing staff was available to provide professional nursing care to patients seen during the measured time period. An index greater than 1.0 indicates that actual hours of available nursing care exceeded those required by patients. Within the emergency care setting, this may not be uncommon owing to variations in patient arrival as well as seasonal and monthly fluctuations (Rea, 1990).

Chapter 3

METHODS

This study will be done by retrospective chart review using a nonexperimental, comparative design to compare actual ED staffing levels and predicted staffing levels. The following chapter will describe the setting for this study, patient population, sample, data collection procedures and instrumentation. Other areas addressed are the protection of human subjects, analysis of data and reliability and validity.

Setting

The setting for this study is a 1,000 bed, tertiary care, military hospital in a medium sized metropolitan area of the southwestern United States. The study hospital is a level I trauma center with a total bed capacity of twenty-three.

Emergency department nursing management is the responsibility of one ED nurse manager and three charge nurses. There are thirteen staff nurses, thirty-six medical technicians, and three part time ward clerks. Most personnel work 12 hour shifts. Nurses working in the ED must have at least two years of nursing experience, preferably in emergency nursing or critical care nursing. They participate in a six week individually tailored orientation program prior to being assigned as permanent staff. They must be ACLS certified; they must pass a basic and emergency

medication test and be verified on skills. Medical technicians receive a similar individually tailored orientation for six weeks. The technicians must have national EMT certification, have all skills verified, and pass a medication test. A nursing supervisor is always on duty to help with patient admissions, and to provide clinical support.

Medical staffing in the ED is by twelve emergency medicine, board certified, or board eligible physicians. Other off service physicians, residents, interns, and medical students provide rotational support through the ED. This ED is also responsible for providing ambulance support to the local base area.

Patient Population

The patient population of the ED includes all age groups both military and civilian with the largest number being military. Many of the treated patients are retired service members and many are hispanic. A wide variety of patients are treated with conditions ranging from suture removal to massive trauma. The patient census in the ED from 1987 to 1990 ranged from 44,079 to 53,111 with a mean annual census of 48,868. Historically the busiest months in the ED are January and May while the slowest months are July and November. Figure 4 shows the mean ED census by month from January 1, 1987 through June 30, 1991. Approximately

150-200 patients are triaged daily with 10% of those seen being admitted. Figure 5 depicts the mean number of patient admissions by unit each month between September 1, 1990 and June 30, 1991.

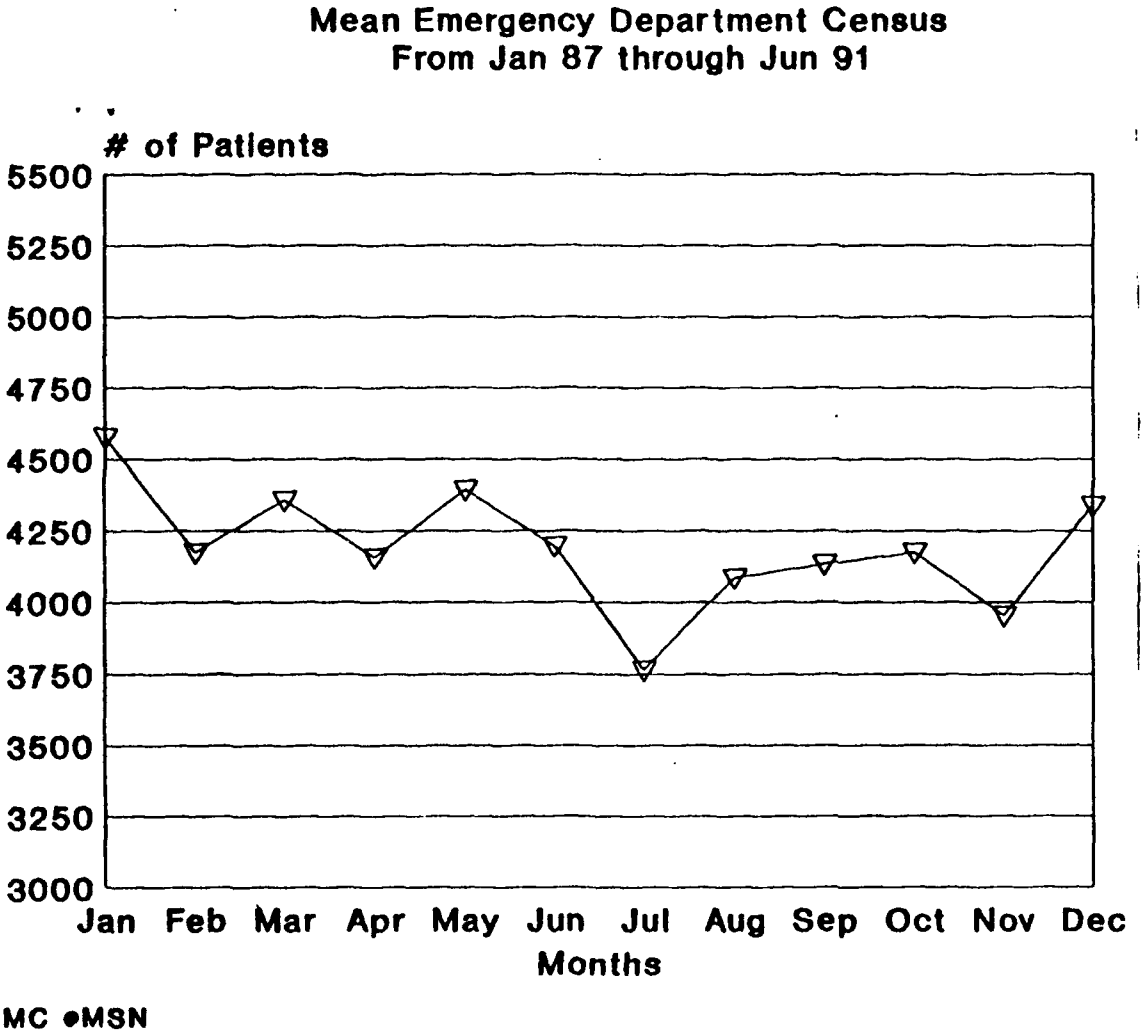

Figure 4

Mean Emergency Department Census

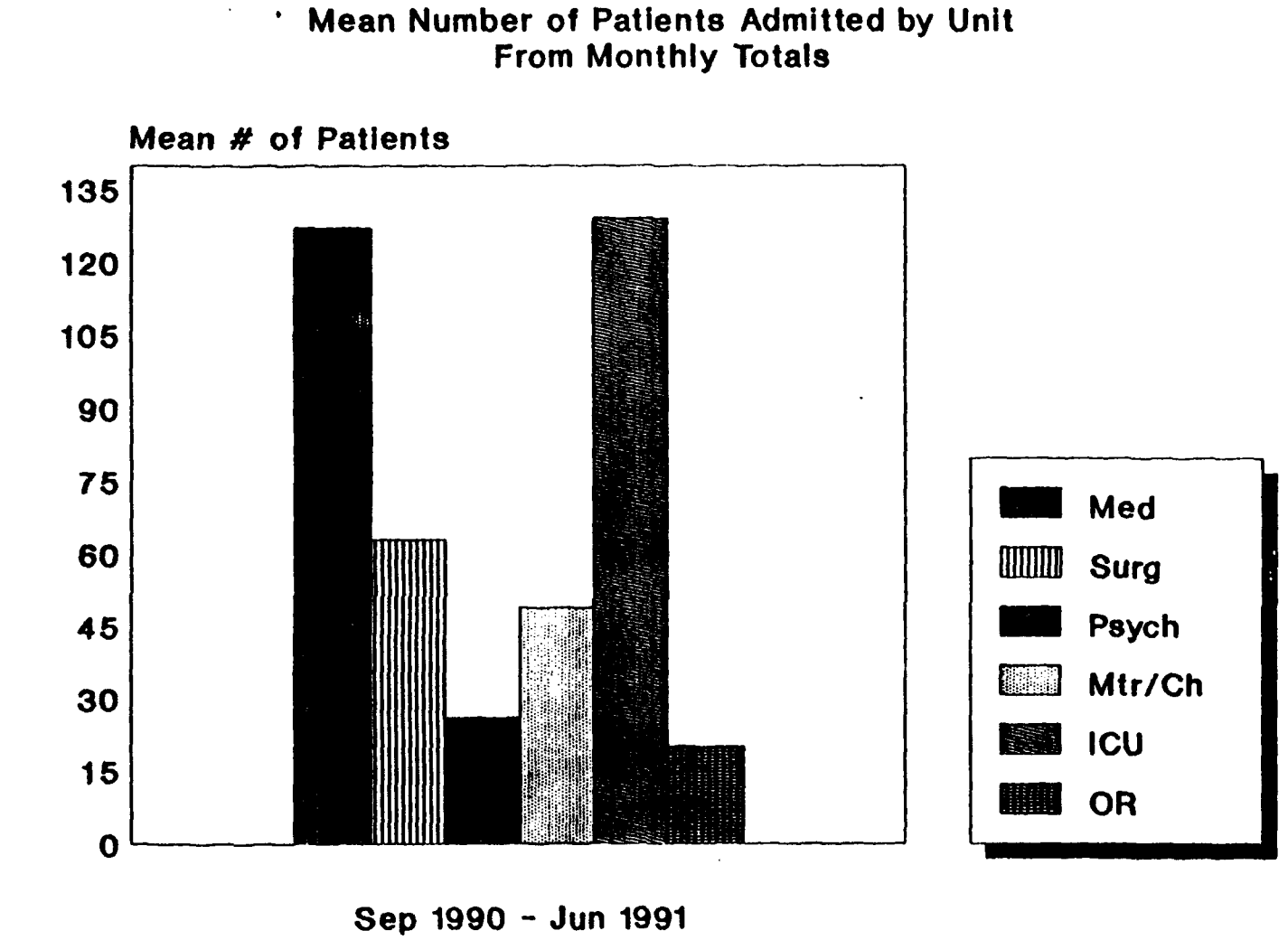

Figure 5

Mean Number of Patient Admissions by Unit

from Monthly Totals

This ED averages two cardiopulmonary resuscitations daily. The average disposition time for patients who are not admitted to the hospital is two hours, whereas, patients who are admitted to the hospital have an average disposition time totaling three and one half hours. The ED waiting area seats 60 people.

Sample and Data Collection

The sample for this study will consist of patients seen in the ED on twenty eight days randomly selected from the past twelve months. A sample size of twenty eight was chosen to provide an alpha level of .05, a power of .85, and a population effect of .50.Once the days have been selected all of the patients ED records for those days and all nursing staff schedules for the same days will be retrieved to be used analysis. Comparisons will be made between the total number of nursing care hours predicted to be needed in each twenty four hour period for the twenty eight days selected, and the number of nursing care hours actually available during the same periods of time. Total nursing care hours needed will be calculated based on the PCS developed for this ED and nursing care hours available will be based on the staff schedule. These data will be used for analysis of the research question.

Instrumentation

Three instruments will be used in this study. First, the instrument "Data Collection Tool for Measuring Patient Acuity" will be used to determine the mean patient care time needed by patients in each of four different triage categories. Second, the " Number of Predicted Patient Care Hours Estimate Sheet" will be used to determine the number of nursing care hours predicted to be necessary for the care of the patient population of a given day. Third, a form, "Calculation of Available Patient Care Hours", will be used to generate the actual number of patient care hours available on each of the study days. These instruments are described in the following section.

Instrument 1

The "Data Collection Tool for Measuring Patient Acuity" is a patient classification system. It is designed to provide the data necessary to determine the average amount of nursing care time needed to administer care to patients in each of four triage categories. This instrument was developed by the investigator for use in this study. Development of the instrument was carried out in several steps: 1) literature review 2) collection of demographic data 3) development of standards/expectations of care 4) tool development/revision 5) data collection by time and motion studies 6) interrater reliability checks 7) analysis

of data. Use of this instrument provides the mean or average amount of nursing time necessary to provide standard/expected care to patients in each of the triage categories I-IV. The details of developing this instrument and the standard/expected care tasks that were measured can be found in Appendix A.

Face and content validity for this instrument was determined by review of the instrument by - ED nurses, experts in PCS's, and by comparison to the literature and other instruments. Construct validity has not yet been determined.

Interrater reliability was determined by comparing the times obtained when the same task was measured at the same time on the same patient by two different individuals. Not only were separate task times compared but overall patient care time was also compared. Results of these comparisons have not been collated at this time.

Instrument 2

The " Number of Predicted Patient Care Hours Estimate Sheet" was developed for use with this study, (see Appendix B), in order to predict the number of nursing hours needed to care for all of the patients seen in the ED over a twenty four hour period. This is done by multiplying the number of patients seen in each triage category over a twenty four hour period by the average amount of time determined to be

necessary for their care. The four times obtained are then added together to give the total predicted nursing time needed to care for this specific group of patients.

Face and content validity of this procedure was obtained by reviewing the literature and review by expert nurses. Predictive validity will also be obtained once the average triage times have been finalized. This will be done by randomly selecting two patients from each triage category and measuring the amount of nursing care time they need. A comparison can then be of the times obtained to those already established.

Interrater reliability was determined by having two nurses calculate the total time predicted to be necessary in the same twenty four hour period. This will be done for ten of the twenty eight days chosen.

Instrument 3

The worksheet for the "Calculation of Available Patient Care Hours" was developed for this study to convert standard staffing information into a measure of available patient care hours. The amount of time a nurse is available for patient care must take into consideration administrative time, indirect care time (see Appendix C), non-nursing care time (see Appendix D), training time, inservice time, lunch time, and other obligations. Thus a nurse who is scheduled to work for 12 hours may only be available for 10½ hours to

provide patient care. The average percentage of time each nurse is available for patient care was determined by the nurses position in the organization and their input on the data collection tools in Appendices C and D.

Face and content validity were determined by a review of literature, review by nurses expert in the field, and analysis of previous scheduling practices.
Predictive validity will also be determined by randomly observing 10 nurses in different positions in the organization to determine the congruence between the percentage of time they were predicted to provide patient care and the percentage of time they actually did provide the care.

Interrater reliability was determined by having two nurses calculate the total time available for nursing care during the same twenty four hour period. This will be repeated for ten of the twenty eight days chosen.

Data Analysis

The research question examines the relationship between the predicted number of patient care hours necessary to care for a group of patients and the actual number of patient care hours available according to staffing reports. The strength of the relationship between the two variables will be analyzed by assessing the correlation between the two values, predicted time, and actual time. The Pearson Product

Moment Correlation (r) will be used. The correlation coefficient *r* is a mathematical statement about the relationship which exists between two variables. It also reveals the type of relationship that exists, that is, whether the relationship is positive or negative (Munroe, 1986). This coefficient will be determined for each of the 28 days and the relationship will be determined. The significance of the difference between the two sets of scores will then be determined using a paired *t*-test. A significance level of .05 will be used.

Protection of Human Subjects

Permission to conduct this study was obtained from the institution where the study will be done and permission will also be obtained from the Committee for the Protection of Human Subjects at the University of Texas Health Science Center in Houston. There will be no manipulation of care or interaction with patients at any time during this study. No personal data will be collected on any patient at any time. The only data to be obtained from the patient's chart is the triage category.

Appendix A

Development of "Standard/Expected Nursing Care Tasks"

1) Purpose:

a. to define and standardize the minimally acceptable direct nursing care tasks to be observed and timed in the development of the emergency departments PCS.

2) Method of development:

a. the listing of tasks was derived from the Work Load Management System for Nurses, current emergency department nursing care literature, the Joint Commission on the Accreditation of Health Care Organizations, Air Force policies and procedures, the Emergency Nursing Association, and ED nurses at this facility.

b. each ED nurse was given four "Patient Care Standard/Expectation Development Tools" with both written and verbal instructions for completing them (see Appendix A-1 for the written instructions and a sample tool).

c. once these tools were completed the data was collated into "Standard/Expected Nursing Care Tasks", (see Appendix A-2).

3) Significance: provided a list of nursing activities to be timed consistently for patients with similar diagnoses in the same triage group.

4) Reliability:

a. two nurses were individually assigned to develop standards for the same disease category as a check on consistency between the nurses.

b. all of the nurses work was checked against standards available in the literature and other sources noted in 2 a.

5) Validity:

a. each nurses data was collated into the instrument and the standards/expectations they set were then rechecked against the literary sources they used, amongst the nurses themselves, and through the ED nurse manager. This ensured the tasks identified and the frequency with which they should be performed were realistic.

b. all of the ED nurses agreed that if the standard/expected nursing tasks they identified are accurately performed for each patient in a given triage category with a given system dysfunction then the minimum standard/expected nursing care would be met.

c. at least every 6-12 months standard/expected nursing care tasks will need to be reassessed for accuracy and factored into the PCS.

Instruments 1-A & 1-B

"Data Collection Tool for Measuring Patient Acuity"

1) Purpose:

a. to document time needed to perform standard/expected nursing care tasks in the ED.

b. to provide total nursing care time needed for a patient in a particular triage category with a particular system dysfunction.

c. to provide the data needed to calculate the mean amount of nursing time required to care for patients in a particular triage category.

2) Method of Development:

a. standard tasks to be timed taken directly from "Standard/Expected Nursing Care Tasks" listing.

3) Reliability:

a. Interrater reliability for timing of tasks will be documented.

b. Times obtained through observation will be checked against times documented in the Work Load Management System for Nurses. This system has been in use in the inpatient setting of the study hospital since 1988 and has established reliability.

4) Validity:

a. Once the mean amount of direct nursing care time has been determined for a particular triage category a random check of at least two patients in each triage category will be performed. This will provide a rudimentary check on validity.

b. A one-way analysis of variance for the dependent variable nursing care time by classification category will be done to reflect differences between the categories.

c. at least every 6-12 months timing of the standard/expected nursing care tasks performed for patients in each triage category will need to take place to validate the PCS.

Data Collection Procedures

The data collection necessary to determine the mean value of direct nursing care time needed for each of the four triage categories) will be carried out through non-participant observation of one hundred randomly selected patients. Each patient chosen for observation will be followed throughout their entire ED stay. The amount of nursing time required for the care of these patients will be observed and recorded by a limited number of nurses with the use of a stop watch. Nurses who will record times will be the emergency center nurse manager, one or two charge nurses and one University of Texas graduate nursing student.

Measurement of the nursing care time needed by each patient will be done on a one to one basis exclusively. This will prevent any possible oversights. Each nurse will use appendix A as a guide to ensure that they measure the essential tasks which must be performed for the patient they are following. The Workload Management System for Nurses will also be available as a reference guide to standardize the starting and stopping point of each task.

Appendix A-1

REPLY TO 1 Aug 91
ATTN OF: Maj David W. Beattie (7331)
or Capt Mary S. Nelson

SUBJECT: Development of Patient Care Standards for ED patients.

TO: Wilford Hall Medical Center, Emergency Department Nurses.

1. The development of an emergency patient classification system needs to be tied to professional standards of care as opposed to measuring activities only as currently performed. For example, patient discharge instructions may not currently be given by nurses owing to staffing shortages, or head to toe assessments may not be done due to complacency. Thus, if time and motion studies are conducted, time for discharge instructions, and head to toe assessments might not be measured, or included in the derivation of required patient care time. Thus, it is important to measure required nursing care on the basis of satndards of care as developed by a specific institution to reflect types of patients seen, consumer expectations, nursing philosophy, nursing practice acts, and institutional policy (Rea, 1990).

When the time and motion studies are carried out for establishing the patient classification system in the ED it is crucial that we measure the time it takes to provide standard nursing care to each patient. First, however, those standards must be established.

2. For this reason each of you is being asked to develop a standard of care for a particular class of patient in each of the triage categories. These classes are: musculoskeletal, neurological, cardiovascular, EENT, psychological, pediatric, OB/GYN, gastrointestinal, integumentary, genitourinary and other. Resources available to you as references when developing these standards are:

a. OI's
b. policies and procedures
c. ENA's Standards of Emergency Nursing Practice
d. Trauma Nursing by Cardona et. al.
e. Shock Trauma Care Plans by Strange
f. Decision Making in Emergency Nursing by Mancinni
g. Clinical Guidelines for Emergency Nursing by Moore & Charlson.

**********References must be used and documented.**********

3. Those tasks which you feel are the standard care tasks to be performed for the class of patients you have chosen should be documented on the "Patient Care Standards Development Tool" enclosed with these instructions. The detailed method for completing these tools is as follows:

a. Complete the information at the top of the form in the appropriate blanks.

b. Complete one tool for each triage category except for those in category 4 who receive life saving measures in the trauma room. (They will receive nursing care times equal to the number of nursing personnel caring for them multiplied by the time they are in the shock room.)

c. Use a highlighter to clearly mark the tasks you feel are the minimum standards of care for a patient in the identified class and triage category. (Not all tasks on the checklist necessarily apply; this list is a composite of both direct and indirect nursing care activities which are applicable to a wide variety of patients).

d. Place a ✓ in the appropriate column to indicate whether the task should be accomplished by a nurse or a technician.

e. Indicate in the frequency column how often the task should be performed i.e. q.d.(in the ED this means once during the patients visit), b.i.d., q 30 min. etc.

f. Return the completed forms to Maj Beattie by 6 Sep 1991.

g. If you have any questions please ask.

4. Your help as professional nurses is our only means of establishing a realistic patient classification system in the ED.

Thank You,

DAVID W. Beattie, Maj, USAF, NC
Manager Emergency Services

MARY S. NELSON, Capt, USAF, NC
AFIT

PATIENT CARE STANDARDS DEVELOPMENT TOOL

Nurses Name _____ *Date*_____

Patient Class: Circle One: MUSCULOSKELETAL NEUROLOGICAL CARDIOVASCULAR EENT PSYCHOLOGICAL PEDIATRIC OB/GYN GASTROINTESTINAL INTEGUMENTARY GENITOURINARY OTHER

References Please List Those Used:
a.
b.
c.
d.
e.
f.

*Triage Category:*_____

TRIAGE	NURSE	TECH	FREQUENCY	NOTES
Vital Signs				
History				
Written Documentation				
Physical Assessment				
Weight				
Medication				
Bandaging/Splinting/Ice				
Immobilization of C-Spine				
Register Patient/Clerical				
Retrieve Records				
Obtain & Test Specimens &/or Send Specimens				
Assist Patient to or from Triage				
Provide Directions/Patient Education				
Patient Education				
Verbal Report, Referral or Telephone Consult				

	NURSE	TECH	FREQUENCY	NOTES
VITAL SIGNS				
Automated TPR, BP				
Femoral, pedal or popliteal pulses or FHT				
Manual TPR, BP				
Orthostatic Vital Signs				
Rectal or axillary temp or apical pulse				
MONITORING				
Arterial Line/Swan Ganz/ICP setup				
Arterial Line/ICP monitor reading				
Cardiac/Apnea/Temp/BP monitoring electronically				
Central venous pressure or ICP pressure monitor				
Circulation checks				
Intake & Output				
Neurologic Checks				
Patient Checks				
Transcutaneous Monitor/Oximeter				
Other				

	NURSE	TECH	FREQUENCY	NOTES
ACTIVITIES OF DAILY LIVING				
Ambulate				
Assist from wheelchair to stretcher				
Bedpan				
Dressing/Undressing				
Feeding				
Patient Hygiene				
IV THERAPY				
Blood Products				
Change bottle/bag/volutrol				
Heparin Lock or Broviac Catheter				
Infusion controller/pump				
Intravenous medication piggyback and push				
Prepare and start IV infusion				
Discontinue IV infusion				
TREATMENTS, PROCEDURES AND MEDICATIONS				
Ace Wrap				
Accompany patient to another area				
Assist with pelvic exam				
Cast/Splint application				

TREATMENTS, PROCEDURES AND MEDICATIONS CONT.	NURSE	TECH	FREQUENCY	NOTES
Catheterization-Foley/Straight				
Chaperoning				
Chest tube insertion or lumbar puncture				
Dressing complex				
Dressing simple				
Electrocardiogram				
Enema				
Ewald tube				
Isolation Gown & Glove Universal Precautions				
Irrigations/Lavages				
Lab Tests				
Medications exclude IV				
Oral				
IM				
Topical				
Sublingual				
SQ				
Suppository				
Eye Drops				
Ear Drops				
Nose Drops				

NOTES

TREATMENTS, PROCEDURES AND MEDICATIONS CONT.	NURSE	TECH	FREQUENCY
Nasogastric tube			
Restraints			
Suturing/ Wound Cleaning			
Thoracentesis or paracentesis			
Transfer patient In-house			
Tube care			
Venipuncture, Arterial puncture			
Other: Please list a.			
b.			
c.			
d.			
e.			
f.			

RESPIRATORY THERAPY			
Airway Support			
Manual Ventilation			
Nebulizer Treatment			
Peak Flow Measurement			
Postural Drainage			
Suctioning			
Tracheostomy care/Ventilator			

NOTES

	NURSE	TECH	FREQUENCY
TEACHING			
Discharge			
Pre-Op/consent forms			
Procedure teaching			
EMOTIONAL SUPPORT			
Patient			
Family			
DOCUMENTATION/COMMUNICATION			
Critical Care Flow Sheet			
EKG retrieval			
Follow-up on test results			
IV Flow Sheet			
Label Specimens			
Package patient			
Record retrieval			
Trauma Flow Sheet			
Verbal patient report/consultation			
Written documentation on SF 558			
Complete Request Slips			
Deliver Request Slips			

NOTES

OTHER	NURSE	TECH	FREQUENCY
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			

EMERGENCY DEPARTMENT
STANDARD NURSING CARE TASKS
WILFORD HALL MEDICAL CENTER

E= may be performed by a nurse or a medical technician
N= is usually performed by a nurse
T= is usually performed by a medical technician

LEGEND

TRIAGE	Triage Category I		II		III		IV		Systems MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Vital Signs	E	1	E	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
History	E	1	N	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Documentation on SF 558	N	1	N	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Physical Assessment	N	1	N	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Weight: children ≤ 12, pts with burns, edema, or pregnant.	E	1	E	1	E	1	N	1			*			*		*		*			
Medication: Antipyretic, Tetanus Tox., SL Nitro.	N	1	N	1	N	1	N	1			*	*		*			*	*	*	*	
Bandaging/ Splinting/ Ice	E	1	E	1	E	1	E	1	*					*							*
Immobilization of C-Spine	E	1	E	1	E	1	E	1	*	*				*		*					*

TRIAGE cont.	Triage Category I		II		III		IV		System MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Register pt. (906 unavail.)	E	1	E	1	T	1	T	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Retrieve records	E	1	E	1	T	1	T	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Order, obtain, test, or send specimens: x-rays, UA, throat cult., blood glucose	E	1	E	1	N	1	N	1	*			*		*	*	*			*	*	*
Assist pt. to or from triage: amb., w/c, stretcher Give directions	E	1	E	1	E	1	E	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Patient Ed.	E	1	E	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Verbal report, referral or telephone consult	N	1	N	1	N	1	N	1	*	*	*	*	*	*	*	*	*	*	*	*	*
Vital Signs																					
P,R,BP Auto or Manual	E	q4h	E	q4h	E	q1h	E	q15m	*	*	*	*	*	*	*	*	*	*	*	*	*
Circulation: femoral, pedal, or popliteal pulses or FHT	E	1	E	1	N	q30m	N	q15m	*		*			*		*		*			*
Orthostatic vital signs	E	1	E	1	N	1	N/A									*	*		*		
Temperature rectal, oral or axillary if febrile	E	q2h	E	q2h	E	q1h	E	q1h	*	*	*	*	*	*	*	*	*	*	*	*	*

MONITORING

	Triage Category				System											
	I	II	III	IV	MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Arterial/ Pulmonary/ Superior Vena Cava line/ICP setup	N/A	N/A	N 1	N 1		*	*	*	*			*					*
Arterial/ Pulmonary/ Superior Vena Cava line/ICP monitoring	N/A	N/A	N/A	N q15m		*	*	*	*			*					*
Cardiac/BP electronic monitoring	N/A	N q4h	N q1h	q1h N q15m	*	*	*	*	*	*	*	*	*	*	*	*	*
Intake & Output All pts with IVs, drainage tubes, or edema	N/A	E q1h	prn E q1h	prn E q1h	*	*	*	*	*	*	*	*	*	*	*	*	*
Neuro. checks	N q4h	N q4h	prn N q1h	prn N q15m		*	*	*	*	*	*	*		*		*	*
Patient safety checks	E q4h	E q1h	prn N q1h	prn N q15m	*	*	*	*	*	*	*	*	*	*	*	*	*
Transcutaneous Monitor/ Oximeter checks	N/A	N q1h	prn N q1h	prn q1h N q15m		*	*	*		*		*	*	*	*	*	*

ADLS

Bedpan/bathroom	E prn	E prn	E prn	N/A	*	*	*	*	*	*	*	*	*	*	*	*	*
Dressing/ Undressing assist with gown	E prn	E 2	E 2	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Hygiene	E prn	E q8h	E q4h	N q1h	*	*	*	*	*	*	*	*	*	*	*	*	*
Move from w/c to stretcher or stretcher to stretcher	E prn	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*

IV Therapy

	Triage Category I	II	III	IV	System MUSC	NEUR	CARD	ENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Blood product administration	N/A	N/A	N prn	N prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Change IV bottle/bag/ volutrol	N/A	E prn	E prn	E prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Discontinue IV therapy	N/A	E 1	E 1	E prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Initiate heparin lock	N/A	E prn	E prn	E prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Initiate IV therapy	N/A	E 1	E 1	E 2	*	*	*	*	*	*	*	*	*	*	*	*	*
Infusion controller pump setup	N/A	E 1	E 1	N 2	*	*	*	*	*	*	*	*	*	*	*	*	*
IV medication push or piggy back	N/A	N prn	N prn	N prn	*	*	*	*	*	*	*	*	*	*	*	*	*

TREATMENTS, PROCEDURES AND MEDICATIONS

Ace Wrap	E prn	E prn	N/A	N/A	*					*				*			
Accompany pt. to another area	E prn	E prn	E prn	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Admission preparation of patient	N/A	N prn	N 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Arterial Puncture	N/A	N prn	N prn	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Cast/Splint/ Sling applied	E 1	T 1	T 1	N/A	*					*							
Catheter Foley/Straight	E prn	E prn	E prn	E 1			*				*	*			*	*	*
Chest tube insertion or lumbar puncture set up	N/A	N prn	N 1	N 1	*	*				*						*	*

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	Triage Category I	II	III	IV	System MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Childbirth assist with	N prn	N prn	N prn	N prn								*					
Comfort measures	E prn	E q1h	E q2h	E q30m	*	*	*	*	*	*	*	*	*	*	*	*	*
Culture collection	E 1	E 1	E 1	E 1		*		*		*	*		*	*	*	*	
Dressing complex	N/A	E prn	E prn	N prn	*			*			*				*		*
Dressing simple	E prn	E prn	E prn	E prn	*			*			*				*		*
EKG	E prn	E 1	E 1	E 1			*									*	*
Enema (include barium)	E prn	E prn	E prn	E prn		*						*	*				
Ewald tube	N/A	N/A	E 1	N 1		*			*			*	*				
Eye patch/ shield applied	N prn	N prn	N prn	N prn				*									
Hemocult	N/A	N prn	N prn	N prn										*		*	
Isolation gown & glove (univ. precautions) staff	E prn	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Isolation precautions patient	E prn	E prn	E prn	E prn		*							*	*		*	
Incision & drainage assist	E prn	E prn	E prn	N/A				*		*	*			*			
Irrigations/ lavages/ debridement	E prn	E prn	E prn	N 1	*	*		*	*		*	*	*	*			*
Lab tests (blood glucose, urine dipstick, H/H)	E prn	E prn	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	Triage Category				System												
	I	II	III	IV	MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Medication administration excluding IV route																	
Ear Drops	N prn	N prn	N prn	N prn				*		*							
Emetics	N/A	N prn	N prn	N prn					*				*				
Eye Drops	N prn	N prn	N prn	N prn		*		*		*		*					*
IM	N prn	N prn	N prn	N prn	*			*	*	*	*	*	*		*		*
Nose Drops	N prn	N prn	N prn	N prn				*		*						*	
Oral	E prn	E prn	E prn	N/A	*	*	*	*	*	*	*	*	*	*	*	*	
SL	N prn	N prn	N prn	N prn			*										
SQ	N prn	N prn	N prn	N prn						*			*	*		*	
Suppository	N prn	N prn	N prn	N prn					*				*				
Topical	E prn	E prn	N prn	N prn			*							*			
Nasogastric tube	N/A	E prn	E 1	E 1		*		*	*			*	*				*
Newborn care	N/A	N 1	N 1	N 1								*					
Pelvic exam/ chaperone for females	E 1	E 1	E 1	E 1							*	*	*				
Physical exam assistance	E 1	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Restraints (mandatory when intubated)	E prn	E prn	E 1	N 1					*	*							*

TREATMENTS, PROCEDURES, MEDICATIONS cont.	Triage Category I	II	III	V	System MUSC	NEUR	CARD	ENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Sexual assault exam assist	N/A	N prn	N prn	N prn					*	*	*				*		
Sponge bath for fever	E prn	E prn	N prn	N prn		*				*	*	*	*		*	*	
Suture removal	E prn	N/A	N/A	N/A						*				*			
Suturing	T prn	T prn	N/A	N/A						*				*			
Transfer pt. in-house	N/A	E prn	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Tube care for catheters & NGs	N/A	E 1	E 1	N 1		*	*	*	*	*	*	*	*		*	*	*
Ultrasound assist	T prn	T prn	T prn	T prn								*					
Venipuncture	E prn	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Wound care	E 1	E 1	E 1	N 1	*			*		*				*			*
RESPIRATORY THERAPY																	
Airway support assist with intubation	N/A	E prn	E 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Manual vent.	N/A	N/A	N/A	N 1		*	*	*						*		*	*
Nebulizer treatment	E 1	E 1	E 1	N 1				*		*						*	*
Oxygen admin.	N/A	E prn	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Peak flow measurement	E 2	E 2	E 2	E 2				*		*						*	
Postural drainage	E prn	E prn	E prn	N prn												*	*
Suctioning	N/A	N/A	N prn	N prn		*	*									*	*
Trach. care/ vent. care	N/A	N/A	N q1h	N q1h		*	*									*	*

TEACHING	Triage Category I	Triage Category II	Triage Category III	Triage Category IV	System MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Discharge	N 1	N 1	N 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Medication	N 1	N 1	N 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Pre-op consent forms	N prn	N prn	N prn	N prn	*	*	*	*		*	*	*	*	*	*	*	*
Procedure	E 1	E 1	E 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*
EMOTIONAL SUPPORT																	
Patient	E 1	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Parents	E 1	E 1	E 1	N 1					*	*							
Family	E prn	E prn	N prn	N prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Staff	E prn	E prn	E prn	E prn	*	*	*	*	*	*	*	*	*	*	*	*	*
DOCUMENTATION/COMMINICATION																	
Critical care flow sheet	N/A	N/A	N prn	N 1	*	*	*	*	*	*	*	*	*	*	*	*	
EKG retrieval	E prn	E prn	E prn	E prn			*										*
Follow-up on test results	N 1	N 1	N 2	N 2	*	*	*	*	*	*	*	*	*	*	*	*	*
I & O flow sheet	N/A	E q8h	E q8h	N q1h		*	*			*		*	*	*	*		*
Label Spec.	E 1	E 1	E 3	E 5	*	*	*	*	*	*	*	*	*	*	*	*	*
Package pt.	N/A	E prn	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Physician notification of pt. status	N prn	N prn	N prn	N prn	*	*	*	*	*	*	*	*	*	*	*	*	*
Record search	E prn	E prn	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Request slip completion (lab,x-ray)	E prn	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*

DOCUMENTATION/COMMUNICATION

cont.

	Triage Category				System											
	I	II	III	IV	MUSC	NEUR	CARD	EENT	PSYC	PEDI	GYNE	OBST	GAST	INTE	GENI	RESP	MULT
Request slip disposition	E prn	E 1	E 1	E 1	*	*	*	*	*	*	*	*	*	*	*	*	*
Standard form 558 documentation (treatments, tolerance of treatments, & outcomes)	N 1	N q4h	N q1h	N q10m	*	*	*	*	*	*	*	*	*	*	*	*	*
Trauma flow sheet	N/A	N/A	N q10m	N q10m													*
Verbal pt. report for adm./referral	N 1	N 1	N 1	N 1	*	*	*	*	*	*	*	*	*	*	*	*	*

Instrument 1

DATA COLLECTION TOOL FOR MEASURING PATIENT ACUITY

TRIAGE CATEGORY _____ *DATE*_____

*DIAGNOSIS*_____ *TIME IN*_____

*ED LOG #*_____ *TIME OUT*_____
*AGE*_____

*ADMISSION: YES*_____ *NO*_____

*IF YES, TIME OF ORDER*_____ *UNIT*_____

NOTE: Time is in minutes in increments of 15 seconds. i.e 1/4 min, 1/2 min etc.

*TRIAGE NURSE/TECHNICIAN*_____

TRIAGE: *Place a ✓ in the box next to each task performed during triage. Timing each task individually is optional, however the total time the patient spends in triage is essential. Record this time in the appropriate box on the third page of this form.*

	✓	time
Vital Signs		
History		
Documentation on HQ JMMC-SA Form 3070/SF558		
Physical Assessment		
Weight: children ≤ 12, pts with burns, edema, or pregnant.		

TRIAGE

cont.

	✓	time
Medication: Antipyretic, Tetanus Tox., SL Nitro.		
Bandaging/ Splinting/ Ice		
Immobilization of C-Spine		
Register pt. (906 unavail.)		
Retrieve records		
Order, obtain, test, or send specimens: x-rays, UA, throat cult., blood glucose		
Assist pt. to or from triage: amb., w/c, stretcher Give directions		
Patient Ed.		

TRIAGE

cont.

	✓	time
Verbal report, referral or telephone consult		
TOTAL TRIAGE TIME		

DO NOT WRITE
IN THIS SPACE

*Patient Care Area*_____

*Primary Nurse Providing Care*_____

Directions: Using the symbols in the legend below, place a ✓ in the appropriate box and record frequencies and times as indicated.

N=performed by a nurse
T=performed by a medical technician
O=performed by a doctor or other provider
#=number of times the task was performed
⊖=the time it took to perform the task once

LEGEND

Vital Signs

Do Not Write in the Space Below

	N	T	O	#	⊖
P,R,BP Auto or Manual					
Circulation: femoral, pedal, or popliteal pulses or FHT					
Orthostatic vital signs					
Temperature rectal, oral or axillary if febrile					

Total	Exp.
Total	

MONITORING	N	T	O	#	⊘
Arterial/ Pulmonary/ Superior Vena Cava line/ICP setup					
Arterial/ Pulmonary/ Superior Vena Cava line/ICP monitoring					
Cardiac/BP electronic monitoring					
Intake & Output All pts with IVs, drainage tubes, or edema					
Neuro. checks					
Patient safety checks					
Transcutaneous Monitor/ Oximeter checks					

Do not Write in the Space Below

Total	Exp.
Total	

ADLS

	N	T	O	#	⊖
Bedpan/bathroom					
Dressing/ Undressing assist with gown					
Hygiene					
Move from w/c to stretcher or stretcher to stretcher					

IV Therapy

Blood product administration					
Change IV bottle/bag/ volutrol					
Discontinue IV therapy					
Initiate heparin lock					

Do not Write in the Space Below

Total	Exp.
Total	

IV THERAPY cont.

	N	T	O	#	⊖
Initiate IV therapy					
Infusion controller pump setup					
IV medication push or piggy back					

TREATMENTS, PROCEDURES AND MEDICATIONS

Ace Wrap					
Accompany pt. to another area					
Admission preparation of patient					
Arterial Puncture					
Cast/Splint/ Sling applied					
Catheter Foley/Straight					

Do not Write in the Space Below

Total	Exp.
Total	

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	N	T	O	#	⊘
Chest tube insertion or lumbar puncture set up					
Childbirth assist with					
Comfort measures					
Culture collection					
Dressing complex					
Dressing simple					
EKG					
Enema (include barium)					
Ewald tube					
Eye patch/ shield applied					

Do not Write in the Space Below

Total	Exp.

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	N	T	O	#	⊘	Do not Write in the Space Below Total	Exp.
Hemocult							
Isolation gown & glove (univ. precautions) staff							
Isolation precautions patient							
Incision & drainage assist							
Irrigations/ lavages/ debridement							
Lab tests (blood glucose, urine dipstick, H/H)							
Medication administration excluding IV route							
Ear Drops							
Emetics							
Eye Drops							

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	N	T	O	#	⊖
IM					
Nose Drops					
Oral					
SL					
SQ					
Suppository					
Topical					
Nasogastric tube					
Newborn care					
Pelvic exam/ chaperone for females					
Physical exam/ history					

Do not Write in the Space Below

Total	Exp.

TREATMENTS, PROCEDURES, MEDICATIONS

cont.

	N	T	O	#	⊖
Restraints (mandatory when intubated)					
Sexual assault exam assist					
Sponge bath for fever					
Suture removal					
Suturing					
Transfer pt. in-house					
Tube care for catheters & NGs					
Ultrasound assist					
Venipuncture					
Wound care					

Do not Write in the Space Below

Total	Exp.
Total	

RESPIRATORY THERAPY

	N	T	O	#	⊘
Airway support assist with intubation					
Manual vent.					
Nebulizer treatment					
Oxygen admin.					
Peak flow measurement					
Postural drainage					
Suctioning					
Trach. care/ vent. care					

Do not Write in the Space Below

Total	Exp.
Total	

TEACHING

Discharge					
Medication					

TEACHING

cont.

	N	T	O	#	⊘
Pre-op consent forms					
Procedure					

Do not Write in the Space Below

Total	Exp.
Total	

EMOTIONAL SUPPORT

Patient					
Parents					
Family					
Staff					

Total	

DOCUMENTATION/COMMINICATION

Critical care flow sheet					
EKG retrieval					
Follow-up on test results					

DOCUMENTATION/COMMUNICATION

cont.

	N	T	O	#	⊖
I & O flow sheet					
Label Spec.					
Package pt.					
Physician notification of pt. status					
Record search					
Request slip completion (lab,x-ray)					
Request slip disposition					
Standard form 558 documentation (treatments, tolerance of treatments, & outcomes)					
Trauma flow sheet					

Do not Write in the Space Below

Total	Exp.

DOCUMENTATION/COMMUNICATION

cont.

	N	T	O	#	Θ
Verbal pt. report for adm./referral					

Do not Write in the Space Below

Total	Exp.
Total	

OTHER

Total	

TOTAL NURSING CARE TIME

SHOCK ROOM DATA COLLECTION TOOL

Diagnosis_____ DATE_____

ED Log #_____ TIME IN_____

AGE_____ TIME OUT_____

ADMISSION: YES_____ NO_____

IF YES, TIME OF ORDER_____ UNIT_____

NUMBER OF NURSING PERSONNEL TREATING THIS PATIENT IN SHOCK ROOM_____

LENGTH OF TIME PATIENT WAS TREATED IN THE SHOCK ROOM_____

NURSE RESPONSIBLE FOR RECORDING_____

Place a checkmark next to who performed each nursing care task for the patient while in the shock room and record the number of times it was performed.

Task	N	T	O	# of times
Triage				
IV Insertion				
Catheter Insertion				
Venipuncture				
Oxygen/Airway Support				
Vital Signs				
Blood Glucose Test				

Task	N	T	O	# of times
H & H				
Request Slip Completion				
Specimen Delivery				
Cardiac Monitor Applied				
Urine Dip				
Pulse Oximeter Applied				
Set up Chest Drainage				
NG Insertion				
Suction				
Comfort Measures				
Cut Clothing Off				
Collect Valuables				

Task	N	T	O	# of times
Morgue Preparation				
Family Support				
Staff Support				
Physical Exam				

Instrument 2

DATA COLLECTION TOOL FOR MEASURING PATIENT ACUITY

Step 1. Determine the total number of patients cared for in each triage category for the twenty-four period concerned.

I=_____

II=_____

III=_____

IV=_____

Step 2. Multiply the number of patients seen in each category by the average nursing care time assigned to that triage category. Add these together.

_____ X _____ = _____

_____ X _____ = _____

_____ X _____ = _____

_____ X _____ = _____

\+ TOTAL _____ min.

Step 3. Convert the total time calculated in step 2, to the time in hours.

_____ ÷ 60 = _____ hrs.

Appendix C

Indirect nursing care time will be measured by all nursing service personnel working in the ED. Each of these employees will be asked to record the amount of time they spend completing these activities over the course of a single shift. Indirect care activities will be those tasks outlined on the individuals shift checklist (see Appendix B-1 for these checklists). Once these checklists are completed an average time factor for indirect care time can be calculated. This will later be deducted from the total shift length of each nurse.

Appendix B-1

Missing at this time . Will be composed of staff shift duty checklists.

Appendix D

Non-nursing care activities will be measured by all nursing service personnel working in the ED. Each of these employees will be asked to record the amount of time they spend completing these activities over the course of a single shift. Those tasks listed on the Non-nursing Care Checklist (see Appendix B-2 for this checklist). Once these checklists are completed an average time factor for non-nursing care time can be calculated. This will later be deducted from the total shift length of each nurse.

Appendix B-2

DATE_____
SHIFT START TIME_____
SHIFT END TIME_____
NURSE_____ TECH_____

ACTIVITY	TIME SPENT
Answering the phone	
Cleaning instruments	
Emptying trash	
Non-critical patient transport	
Ordering or stocking supplies	
Other: Please describe a.	
b.	
c.	
d.	
e.	
TOTAL	

Instrument 3

CALCULATION OF AVAILABLE PATIENT CARE HOURS

#	Position	Shift Length		%Time in Direct Care		Total Time Available for Direct Care
_____	Nurse Manager	_____hrs.	X	50%	=	_____
_____	Shift Leaders	_____hrs.	X	80%	=	_____
_____	Staff Nurses	_____hrs.	X	90%	=	_____

Total time in 24 hour schedule available for direct nursing care = _____

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PROJECT PROPOSAL

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PROPOSAL FOR CLINICAL INVESTIGATION

Patient Acuity and Nurse Staffing in the Emergency Care Setting

1. Purpose of Investigation. To use patient acuity as a factor in determining the number of nursing care hours needed in a level I trauma center.
Research Question: How congruent are current staffing levels in the ED with predicted staffing levels measured by the use of a patient classification system?

2. Background. In the past, nurse staffing in the emergency department (ED) has been based upon the number of patients seen yearly. However, higher levels of patient acuity require more nursing time. Due to the unique nature of the ED, with its great diversity in daily patient volume, acuity, type of illness or injury, and length of stay, a patient classification system (PCS) specifically related to emergency nursing activities and time is necessary (Buschiazzo, 1987).

A PCS allows patient needs, or acuity, to be identified and thus delineates staffing requirements. Nursing Service workload has changed drastically over the last fifteen years. With the advent of increasingly complex technology, growth in specialization, provision of more time-consuming tasks, increased emphasis on health teaching, personalization of services to patients, and ongoing evaluation of performance, nurses are finding it impossible to provide their patients with total quality care (Sherrod, 1984).

Healthcare delivery systems have come under close scrutiny in recent years and managers are being required to justify staffing needs. Emergency departments are not exempt from this request, however there is little objective data available to substantiate staffing requirements in the ED (Schulmerich, 1989). Nurse staffing in the emergency department can no longer be measured soley on the number of patient visits, but must also consider the type of visit or the identified nursing needs of the individual patients.

The number of patients seen in the ED is not an adequate indicator of the demand for care. Grouping patients into categories that reflect the magnitude of nursing care time provides a more rational and sensitive approach to determining the need for nursing care resources (Giovannetti, 1983). Although patient classification systems for inpatients have been available for years, outpatient systems have been slow to develop (Kirsch & Talbott, 1990). This is an unfortunate circumstance in the ED because the objective data provided by a PCS is the justification needed for staffing levels.

According to American Hospital Association statistics between 1983 and 1987 outpatient visits increased 16.9 percent, a trend that is not predicted to change. Emergency departments are being flooded by patients who use the ED as their primary source of health care. In addition to this increase in the number of patients seen in the ED there is evidence that patients using the ED are sicker then ever before. No one could have predicted the emergency department overcrowding problems, the epidemic of AIDS, the staggering growth of the drug problem, or the number of homeless persons seen today. It is not unusual for ED staff members to leave their daily shifts to return the next day to the same patients. This is not a unique situation and according to 180 nurses, physicians, hospital administrators, government officials, and other professionals this exists in many states (Fadale 1990).

Although government mandates seem to be hindering rather then helping todays ED's, and nurses remain in short supply, the change in ED patient census and acuity demand similar changes in the health care delivery system. Schulmerich, a pioneer in ED patient classification, states that although the Joint Commission on Accreditation of Healthcare Organizations, JCAHO, has not yet required any kind of a patient classification system in the outpatient hospital setting where patient census and activity are unpredictable the future of this will inevitably change (Schulmerich, 1989). Objective data to substantiate staffing needs based upon patient acuity is a new concept for the ED, but one that has been used for years in the inpatient setting. Patient classification systems justify staffing needs based not only on patient numbers but also on patient acuity. A PCS can also justify the skill mix needed to care for the patient population according to acuity. If the patient population demonstrates high acuity or admission rate, the size of the professional nursing staff must be sufficient to manage both the direct and indirect nursing care needs of the patients and the routine unit maintenance tasks.

Unfortunately most EDs today base their staffing strictly on the number of patient visits with little or no regard to patient acuity. Patient census is only one of many components needed to calculate the number of nurses needed in the ED. The objective data gained from a PCS in the ED may not increase the number of nurses needed to care for these patients due to budgetary constraints, but it is a way to document any disparities between actual hours provided and predicted hours needed. Thus, if a question ever arises as to why a particular standard of care cannot be met or why nurses are quitting the ED the reasons will be evident. When patient care in the ED can take acuity into account in scheduling nurses then the hospital goal of total quality care for the ED patient can be met.

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4. Technical Approach.

a. Collect retrospective demographic data from the ED to evaluate current trends in annual census, admissions, and patients treated and released. Also collect data to establish seasonal trends, average length of stay, number of clinic referrals, and the percentage of cases requiring advanced life support.

b. Terms defined.

Patient classification system, (PCS)- the grouping of patients into categories dependent upon the treatment they receive.

Critical indicators- those patient care activities that have the greatest impact on nursing time.

Staffing- the number of nursing service personnel needed to deliver patient care to a group of patients, and to maintain functioning of the emergency department in accordance with the Joint Commission on Accreditation of Healthcare Organizations standards for operation of a level I trauma center.

Direct nursing care activities,- this is "hands-on" and observable patient care.

Indirect nursing care activities- these are functions and responsibilities associated with patient care but not direct in nature.

Non-nursing activiies- activities that are performed by a nurse that could be performed by someone else.

c. Refine a category based patient classification system for the ED. Resources for this include:

1) literature (from Buschiazzo, 1985):

Category 1

Patients with minor illness or injuries. These patients are examined and/or treated and discharged. No invasive procedures are required. Examples include: sore throat, mild URI or UTI, sprains abrasions, viral syndromes, simple toothache, otitis media, conjunctivitis, cast or wound checks, dressing changes, minor chronic headache **(average of 14 minutes of nursing time).**

Categotry 2

Patients who require a moderate amount of nursing care or procedures before admission or discharge. Examples include: minor lacerations, fractures requiring casting, nosebleeds, first- and second- degree burns, major abrasions or contusions, minor head injuries, pelvic inflammatory disease, patients requiring minimal laboratory studies or consults **(average of 53 minutes of nursing time).**

Category 3

Patients requiring extended nursing care. These patients generally require a second nurse initially and are detained for observation or admitted. Examples include: acute asthma, COPD; threatened, incomplete, or complete abortions; head injuries; seizures; alcohol or drug intoxication; overdose requiring gastric lavage; GI bleeding; TIA; CVA; allergic response; diabetic reaction; psychiatric (uncooperative); high fever with sponge bath; child abuse; fractured hip; rape; patients requiring OR preparation; patients and/or family requiring extensive psychological or social intervention or extensive teaching **(average of 228 minutes of nursing time).**

Category 4

Patients requiring intensive nursing care. These patients always require a second nurse, and sometimes a third nurse is required initially. Examples include: GI hemorrhage, status seizures, status asthma, overdose (unconscious), acute MI, life threatening dysrhythmias, pulmonary edema, pulmonary embolism, ARDS, any patient in acute respiratory distress, major burns, dissecting aneurysms, shock, spontaneous delivery, multiple or major system trauma, patients requiring intubation and or hemodynamic monitoring, code blue **(average of 383 minutes of nursing time, and minute by minute while kept in the ED)**

2) pilot study: a major portion of this study will be data collection to establish a credible PCS for the ED at WHMC. The data collection tool which will be used to measure patient acuity is included separately at the end of this proposal. Time estimates will be based upon both the use of pre-established time standards taken from the "Workload Management System for Nurses" currently in use at WHMC, and actual time measurements recorded by nurses as participant observers. The nursing care time needed for twenty patients in each category will be documented on individual data collection tools. Once twenty samples are available from each category descriptive statistics will be used to determine the average care time needed by each category at WHMC. Outliers will be reconsidered for inclusion in another group.

Other considerations which determine staffing levels will also be measured. This will include recurring shift duties, administration time, training time, non-nursing duties (this data collection tool for non-nursing functions is also included at the end of this proposal), ambulance manning etc. These measurements will be done apart from those of patient acuity.

d. Using the above developed PCS the full time equivalent (FTEs) nursing care hours will be calculated retrospectively using the entire patient population seen in the ED over a given period of time (time period is as yet undetermined). This time will be compared to the actual FTEs scheduled. This will be done several times using differing patient populations at different times. The mean number of hours predicted to be necessary when the PCS is used will be compared to the mean number of hours actually available on the staff schedule over these differing time periods. A t-test statistic will be used for this comparison of means. Interrater reliability for predicting the care hours needed when using the PCS will be determined by having two nurses classify the same patient populations.

5. **Equipment.** None.

6. **Supplies.** Need 5 stop watches to record nursing care time as accurately as possible.

7. **Investigation Schedule.**
a. Anticipated date investigation will begin: upon approval of the project from board members.
b. Duration: ten months.
c. Approximate date of completion: No later then 4 May 1992.

8. Personnel Data.
a. Medical Facility Commander: Edgar R. Anderson, Jr., Maj Gen, USAF, MC, Commander Wilford Hall Medical Center.
b. Primary Investigator:
David W. Beattie, Maj, USAF, NC, 9756, Manager Emergency Services
Mary S. Nelson, Capt, USAF, NC, 9756, AFIT Student Univ. Texas Health Science Center at Houston.
c. Associate Investigator:
Lesa Schwartz, Capt, USAF, NC, 9756, Charge Nurse Emergency Services.

9. Manpower. Primary Investigators: 12 hours per week
Associate Investigator: 5 hours per week.

10. Protocol Summary. Not required IAW MCP-169-5.

Mary S. Nelson, Capt, USAF, NC
AFIT Student, University of Texas Health Science Center at Houston

Donna M. Stone, Lt Col, USAF, NC
Chairman Department of Ambulatory Care Services

DATA COLLECTION TOOL FOR MEASURING PATIENT ACUITY

TRIAGE CATEGORY _____ DATE_____

DIAGNOSIS_____ TIME IN_____

ED LOG #_____ TIME OUT_____

AGE_____

ADMISSION: YES_____ NO_____

IF YES, TIME OF ORDER_____ UNIT_____

TRIAGE	NURSE	TECH	MD	OTHER	FREQUENCY	x	TIME EACH	=	TIME TOTAL
Vital Signs						x		=	
History						x		=	
Written Documentation						x		=	
Physical Assessment						x		=	
Weight						x		=	
Medication						x		=	
Bandaging/Splinting/Ice						x		=	
Immobilization of C-Spine						x		=	
Transport to Monitor Room						x		=	
Retrieve Records						x		=	
Send Lab Specimens						x		=	
Assist Patient to/from Triage						x		=	
Provide Directions						x		=	
Patient Education						x		=	
Telephone Consultation						x		=	
Obtain/Test Urine Specimens						x		=	

	NURSE	TECH	MD	OTHER	FREQUENCY	x	TIME EACH	=	TIME TOTAL
VITAL SIGNS									
Automated TPR, BP						x		=	
Femoral, pedal or popliteal pulses or FHT						x		=	
Manual TPR, BP						x		=	
Orthostatic Vital Signs						x		=	
Rectal or axillary temp or apical pulse						x		=	
MONITORING									
Arterial Line/Swan Ganz/ICP setup						x		=	
Arterial Line/ICP monitor reading						x		=	
Cardiac/Apnea/Temp/BP monitoring electronically						x		=	
Central venous pressure or ICP pressure monitor						x		=	
Circulation checks						x		=	
Intake & Output						x		=	
Neurologic Checks						x		=	
Patient Checks						x		=	
Transcutaneous Monitor/Oximeter						x		=	
Other						x		=	

ACTIVITIES OF DAILY LIVING	NURSE	TECH	MD	OTHER	FREQUENCY	x	TIME EACH	=	TIME TOTAL
Ambulate						x		=	
Assist from wheelchair to stretcher						x		=	
Bedpan						x		=	
Dressing/Undressing						x		=	
Feeding						x		=	
Patient Hygiene						x		=	
Cardiac/Apnea/Temp/BP monitoring electronically						x		=	

IV THERAPY									
Blood Products						x		=	
Change bottle/bag/volutrol						x		=	
Heparin Lock or Broviac Catheter						x		=	
Infusion controller/pump						x		=	
Intravenous medication piggyback and push						x		=	
Prepare and start IV infusion									

TREATMENTS, PROCEDURES AND MEDICATIONS									
Ace Wrap						x			
Accompany patient to another area						x		=	
Assist with pelvic exam						x		=	
Cast/Splint application						x		=	

TREATMENTS, PROCEDURES AND MEDICATIONS CONT.	NURSE	TECH	MD	OTHER	FREQUENCY	x	TIME EACH	=	TIME TOTAL
Catheterization-Foley/Straight						x		=	
Chaperoning						x		=	
Chest tube insertion or lumbar puncture						x		=	
Dressing complex						x		=	
Dressing simple						x		=	
Electrocardiogram						x		=	
Enema						x		=	
Ewald tube						x		=	
Isolation Gown & Glove Universal Precautions						x		=	
Irrigations/Lavages						x		=	
Lab Tests						x		=	
Medications exclude IV									
Oral						x		=	
IM						x		=	
Topical						x		=	
Sublingual						x		=	
SQ						x		=	
Suppository						x		=	
Eye Drops						x		=	
Ear Drops						x		=	
Nose Drops						x		=	

TREATMENTS, PROCEDURES AND MEDICATIONS CONT.	NURSE	TECH	MD	OTHER	FREQUENCY	x	TIME EACH	=	TIME TOTAL
Nasogastric tube						x		=	
Restraints						x		=	
Suturing/ Wound Cleaning						x		=	
Thoracentesis or paracentesis						x		=	
Transfer patient In-house						x		=	
Tube care						x		=	
Venipuncture, Arterial puncture						x		=	
Other: Please list a.						x x		= =	
b.						x		=	
c.						x		=	
d.						x		=	
e.						x		=	
f.						x		=	

RESPIRATORY THERAPY									
Airway Support						x		=	
Manual Ventilation						x		=	
Nebulizer Treatment						x		=	
Peak Flow Measurement						x		=	
Postural Drainage						x		=	
Suctioning						x		=	
Tracheostomy care/Ventilator						x		=	

	NURSE	TECH	MD	OTHER	FREQUENCY		TIME EACH		TIME TOTAL
TEACHING									
Discharge						x		=	
Pre-Op/consent forms						x		=	
Procedure teaching						x		=	
EMOTIONAL SUPPORT									
Patient						x		=	
Family						x		=	
DOCUMENTATION/COMMUNICATION									
Critical Care Flow Sheet						x		=	
EKG retrieval						x		=	
Follow-up on test results						x		=	
IV Flow Sheet						x		=	
Label Specimens						x		=	
Package patient						x		=	
Record retrieval						x		=	
Trauma Flow Sheet						x		=	
Verbal patient report/consultation						x		=	
Written documentation on SF 558						x		=	

OTHER

	NURSE	TECH	MD	OTHER	FREQUENCY		TIME EACH		TIME TOTAL
a.						x		=	
b.						x		=	
c.						x		=	
d.						x		=	
e.						x		=	
f.						x		=	
g.						x		=	
h.						x		=	

DATA COLLECTION TOOL FOR NON NURSING FUNCTIONS

DATE_____

SHIFT START TIME_____

SHIFT END TIME_____

ACTIVITY	TIME SPENT
Answering the phone	
Cleaning instruments	
Emptying trash	
Non-critical patient transport	
Ordering or stocking supplies	
Other: Please describe a.	
b.	
c.	
d.	
e.	
TOTAL	

VITAE

NAME: Mary S. Nelson DATE PREPARED: 11 Jun 1991

RANK/CORPS: Capt/NC DUTY TITLE/AFSC: AFIT Student/9756

OFFICE SYMPBOL: AFIT/CIMI DUTY PHONE NUMBER: (713) 799-8993

BIRTHDATE: 4 May 1958

EDUCATION/TRAINING: Bachelor of Science in Nursing from the Ohio State University. Currently a masters candidate at the University of Texas at Houston, Health Science Center. Masters degree will be in Emergency/Trauma Nursing. Certified ACLS instructor, BTLS provider, BLS provider, EMT-I, and will be seeking certification as a Paramedic with the Houston Fire Department in August 1991.

BOARD CERTIFICATIONS: None

IMPORTANT MILITARY ASSIGNMENTS: ICU staff nurse, Andrews AFB, 1 year; Flight Nurse/Instructor Flight Nurse Clark AB, 3 years; Charge Nurse ER, Laughlin AFB, 1.5 years; Director of Ambulatory Services, Laughlin AFB, 1 year.

RELEVANT RESEARCH EXPERIENCE: No professional publications at this time. Currently working on a publication for the Journal of Emergency Nursing.